

CLAIMS

What is claimed is:

1. A pin lock comprising:
- 5 a first locking member having a locking end; and
a second locking member, including:
- an outer housing having a first aperture dimensioned for receiving at least a
portion of said locking end of said first locking member, said first aperture having a
longitudinal axis;
- 10 a locking mechanism positioned inside said outer housing, at least a portion
of which is rotatable between a locked position and an unlocked position; and
a locking part rotationally coupled with said portion of said locking
mechanism and having an axis of rotation eccentrically disposed with respect to said
longitudinal axis of said first aperture, said locking part dimensioned to interact with at least
15 a portion of said locking end of said first locking member.
2. The pin lock of claim 1, wherein said locking part has a second aperture
dimensioned to allow passage of said locking end through said second aperture when said
locking mechanism is in said unlocked position and to engage said locking end of said first
20 locking member when said locking mechanism is in said locked position.
3. The pin lock of claim 2, wherein said locking part is substantially disc
shaped and the second aperture is a substantially wedge-shaped cutout, at least a portion of
said cutout being dimensioned to engage at least a portion of said locking end of said first
25 locking member.
4. The pin lock of claim 2, wherein said locking part is a substantially disc
shaped plate having a first through hole and a second through hole overlapping said first
through hole, wherein said first through hole defines a first axis and said second through
30 hole defines a second axis with said first axis being eccentrically disposed with respect to
said second axis, wherein said first through hole is dimensioned to engage at least a portion
of said locking end of said first locking member.
5. The pin lock of claim 4, wherein said first axis is aligned with the first
35 aperture longitudinal axis when said locking mechanism is in said unlocked position

6. The pin lock of claim 1, wherein said locking mechanism rotatable portion includes a cylinder shell permanently fixed in said outer housing and a cylinder plug rotatably mounted in said cylinder shell.

5 7. The pin lock of claim 6, wherein said locking mechanism rotatable portion further comprises an extension plate having a keyway and at least one pin extending therefrom and said cylinder plug includes a tail portion, and said locking part is rotationally coupled with said cylinder plug by said extension plate, said keyway is associated with said tail portion of said cylinder plug, and said at least one pin extends from said extension plate
10 and rigidly attaches said extension plate to said locking part.

8. The pin lock of claim 1, wherein said first locking member includes a shaft having a knob at said locking end, said knob defined by an annular recess in said shaft.

15 9. The pin lock of claim 1, wherein said first locking member further comprises a retaining end including an enlarged portion.

10. The pin lock of claim 1, further comprising a sleeve dimensioned to slide over at least a portion of said first locking member.

20 11. A lock for a shaft having a tip with a locking section, said lock comprising:
an outer housing having a first aperture dimensioned for receiving at least a portion of a locking section of a shaft, said first aperture having a longitudinal axis;
a locking mechanism located inside said outer housing and rotatable between a
25 locked position and an unlocked position; and
a locking part rotationally coupled with said locking mechanism and having an axis of rotation eccentrically disposed with respect to said longitudinal axis of said first aperture, said locking part dimensioned to interact with at least a portion of a locking section of a shaft.

30 12. The lock of claim 11, wherein said locking part has a second aperture dimensioned to allow passage of at least a portion of a locking section of a shaft through said second aperture when said locking mechanism is in said unlocked position, and dimensioned to engage at least a portion of a locking section of a shaft when said locking
35 mechanism is in said locked position.

Fig 5
13. The lock of claim 12, wherein said second aperture is substantially wedge-shaped, and a portion of said second aperture is dimensioned to engage at least part of a locking section of a shaft.

Fig 6
5 14. The lock of claim 12, wherein said second aperture includes a first through hole and a second through hole overlapping said first through hole, wherein said first through hole defines a first axis that is eccentrically disposed with respect to a second axis defined by said second through hole, and said first through hole is dimensioned to engage at least part of a locking section of a shaft.

10 15. The lock of claim 11, wherein said locking mechanism comprises a cylinder shell positioned inside said outer housing and a cylinder plug rotatably mounted in said cylinder shell.

15 16. The lock of claim 15, wherein said cylinder shell is permanently fixed inside said outer housing.

17. The lock of claim 16 wherein said locking mechanism further comprises an extension plate having a keyway and at least one pin extending therefrom and said cylinder plug includes a tail portion, and said locking part is rotationally coupled with said cylinder plug by said extension plate, said keyway is associated with said tail portion of said cylinder plug, and said at least one pin extends from said extension plate and rigidly attaches said extension plate to said locking part.

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18. A pin lock comprising:
a first locking member including a shaft with a locking end and a retaining end;
a second locking member dimensioned to receive at least a portion of said locking end of said shaft and lockable onto said locking end of said shaft; and
a sleeve dimensioned to fit over at least a portion of said shaft.

30 19. A method of locking an end of a shaft to a locking mechanism, comprising:
providing a shaft with a locking section;
providing a locking mechanism dimensioned to receive a portion of a locking section of a shaft and having a first aperture with an axis of rotation and a second aperture with an axis of rotation wherein the axis of the first aperture is eccentrically disposed with respect to the axis of the second aperture;

rotating said first aperture into alignment with said second aperture;
inserting an end of a shaft through said first aperture and said second aperture;
rotating said second aperture out of alignment with said first aperture and thereby
engaging a locking section of a shaft.

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20. The method of claim 19, wherein rotating said first aperture into alignment
with said second aperture further comprises inserting a key into a cylinder plug rotationally
coupled to said first aperture and turning said key toward an unlocked position.

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21. The method of claim 20, wherein rotating said second aperture out of
alignment with said first aperture further comprises turning said key to a locked position.

22. The pin lock of claim 10 further comprising a retaining ring disposed within
the sleeve.

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